

CLAIM AMENDMENTS

Please amend Claims 1 and 7, as follows.

1. (Currently Amended) A piezoelectric structure comprising:
a vibrational plate;
a piezoelectric film;
said vibrational plate including a layer of a monocrystal material, a polycrystal material, a monocrystal material doped with an element which is different from ~~an element constituting~~ the monocrystal material prior to its being doped, or a polycrystal material doped with an element which is different from ~~an element constituting~~ the polycrystal materials prior to its being doped, and oxide layers sandwiching the aforementioned layer,
said piezoelectric film has a single orientation crystal or monocrystal structure.

2. (Original) A piezoelectric structure according to Claim 1, wherein a film thickness $D1$ of said vibrational plate and film thicknesses $d1$, $d2$ of said oxide layers satisfy $d1+d2 \leq D1$.

3. (Original) A piezoelectric structure according to Claim 2, wherein a film thickness $D2$ of said piezoelectric film satisfy $d1+d2+D1 \leq 5 \times D2$.

4. (Original) A piezoelectric structure according to Claim 1, wherein a composition of said piezoelectric film is either one of PZT, PMN, PNN, PSN, PMN-PT, PNN-PT, PSN-PT, PZN-PT, and has a single layer structure or a laminated structure of different compositions.

5. (Original) A piezoelectric structure according to Claim 1, wherein said oxide layer comprises at least one of SiO_2 , YSZ, Al_2O_3 , LaAlO_3 , Ir_2O_3 , MgO, SRO, STO.

6. (Withdrawn) A manufacturing method for manufacturing a piezoelectric structure having a vibrational plate and a piezoelectric film, said method comprising:

a step of forming a second oxide layer on a silicon substrate having a monocrystal silicon layer on a silicon layer with an oxide layer interposed therebetween;

a step of forming a piezoelectric film of a single orientation crystal or monocrystal structure on the second oxide layer; and

a step of an upper electrode on the piezoelectric film.

7. (Currently Amended) A liquid ejecting head comprising:

a liquid ejection outlet;

a main assembly substrate portion having a pressure chamber in fluid communication with said liquid ejection outlet and having an opening;

a piezoelectric structure connected so as to plug the opening;

said piezoelectric structure including,
a vibrational plate;
a piezoelectric film;
said vibrational plate including a layer of a monocrystal material, a polycrystal material, a monocrystal material doped with an element which is different from ~~an element constituting~~ the monocrystal material prior to its being doped, or a polycrystal material doped with an element which is different from ~~an element constituting~~ the polycrystal materials prior to its being doped, and oxide layers sandwiching the aforementioned layer,
said piezoelectric film has a single orientation crystal or monocrystal structure.

8. (Original) A liquid ejecting head according to Claim 7, wherein a film thickness D1 of said vibrational plate and film thicknesses dl, d2 of said oxide layers satisfy $dl+d2 \leq D1$.

9. (Original) A liquid ejecting head according to Claim 8, wherein a film thickness D2 of said piezoelectric film satisfy $dl+d2+D1 \leq 5 \times D2$.

10. (Original) A liquid ejection head according to Claim 6, wherein a composition of said piezoelectric film is either one of PZT, PMN, PNN, PSN, PMN-PT, PNN-PT, PSN-PT, PZN-PT, and has a single layer structure or a laminated structure of different compositions.

11. (Original) A liquid ejection head according to Claim 6, wherein said oxide layer comprises at least one of SiO₂, YSZ, Al₂O₃, LaAlO₃, Ir₂O₃, MgO, SRO, STO.

12. (Withdrawn) A manufacturing method for a liquid ejecting head including a liquid ejection outlet; a main body substrate portion having a pressure chamber in fluid communication with said liquid ejection outlet and having an opening; a piezoelectric structure connected so as to plug the opening, said manufacturing method comprising: a step of forming a second oxide layer on a silicon substrate having a monocrystal silicon layer on a silicon layer with an oxide layer interposed therebetween;

a step of forming a piezoelectric film of a single orientation crystal monocrystal structure on the second oxide layer;

a step of separating the piezoelectric film into a plurality of portions;

a step of an upper electrode on the piezoelectric film; and

a step of forming said pressure chamber.